



FROM TRAFFIC BOTTLENECK TO TOURIST ATTRACTION: The Transformation of The Tha Phae Gate in Chiang Mai, Thailand

By Don Hubbard

INTRODUCTION

This paper describes how a particularly troublesome traffic bottleneck in a Thai city was converted into a tourist attraction and center of civic life. The project is now 40 years old, which provides us with an opportunity to see the long-term effects of an unusually transformative project.

BACKGROUND

The city of Chiang Mai in northern Thailand was founded in the 13th century as the capital of the Lanna Thai kingdom. The city was surrounded by a moat and brick defensive wall approximately 1.6km square. A gate was situated near the center of each of the four walls, with a fifth gate, used only for funeral processions, situated in the southwest corner.

For most of the city's history, travelers to the city arrived by boat from a landing on the nearby Ping River. The road leading from the landing to the city wall, called "Tha Phae Road" or "Boat Landing Road", and extending through the gate as a processional route to the city's most important temple, was and is the city's principal east-west corridor (see Figure 1). Shops opened along the road to take advantage of the foot traffic, and the area between the landing and the gate eventually morphed into the city's main business district (Chompoonoot & Hiroaki, 2018). When the first road bridge was built over the Ping River in 1906, it was naturally placed at the east end of this road, with the main rail station nearby. The combination of travelers to and from the city and local trips to and from the business district made the gate through which this road passed the most important entryway into the old city by far.

Photo credit: Copyright of the Tourism Authority of Thailand (TAT). Locals and visiting tourists sprinkle water onto Phra Phutthasihing, the city's most important Buddha image, during the Songkran Festival at Tha Phae Gate. View is to the north as the procession proceeds west towards the gate on the left.

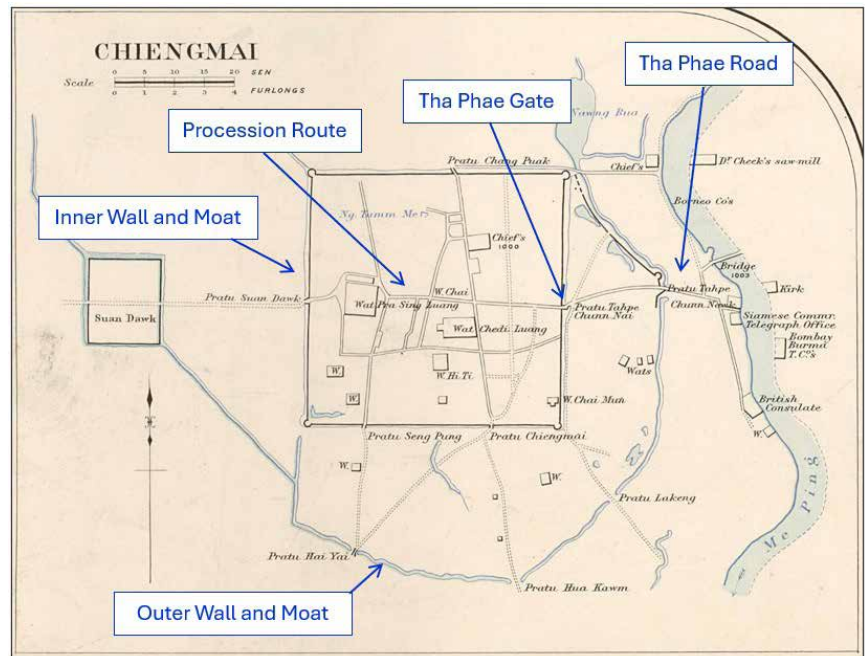
PRE-PROJECT CONDITION

As in other old cities, an unplanned accretion of traditional footpaths eventually turned into a tangle of roads that meet at odd angles and whose widths vary midblock for reasons lost in the mists of time (see Figure 2). Nevertheless, circulation in the area around Thae Phae Gate seems to have functioned reasonably well until the introduction of motorized traffic in the mid-20th century.

Then a number of problems emerged:

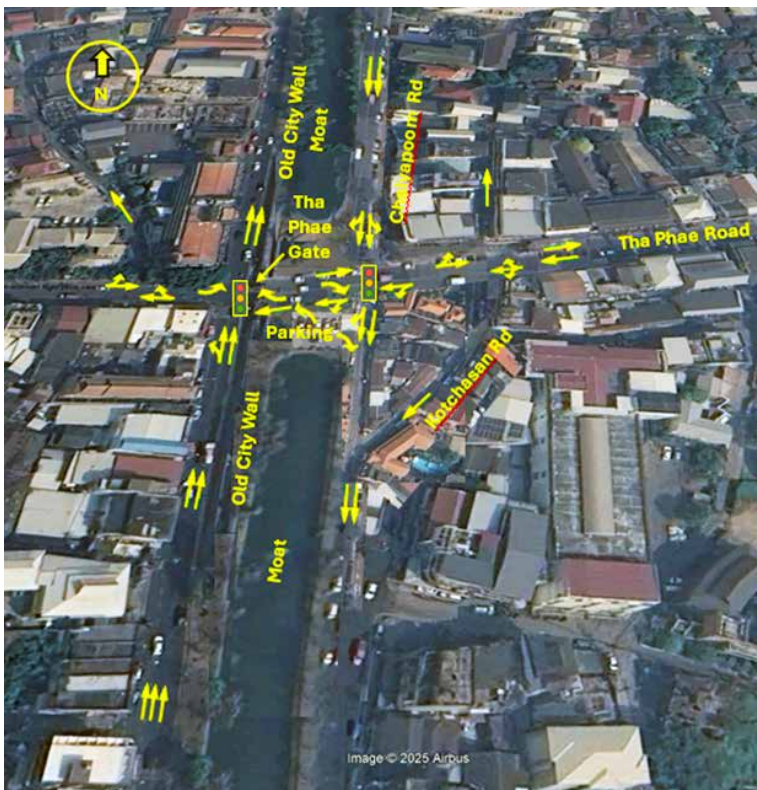
- The overall configuration for the city's road network tended to funnel traffic through the gate, due to the lack of alternate routes between many origin-destination pairs.
- There were sidewalks on most of the streets, but none within the gate itself (see Figure 3). Pedestrians were forced to walk in the travel lanes, with the possibility of being crushed against the wall by a passing vehicle.

Figure 1: Map of Chiang Mai in 1890 (McCarthy, 1890)¹



The moat, defensive walls, and five gates through the city wall are shown, along with the royal processional route (Rachadamnoen) between Tha Phae Gate and the city's most important temple.

Figure 2: Road Configuration Prior to Project²



- There were three major and one minor intersection within the 110m section of Tha Phae Road centered on the gate. Queues from one intersection routinely backed up through the next, with motorcycles zipping in all directions through the queues of stopped cars.
- There was no separation of traffic types, despite the great differences in size and speed. Besides pedestrians and cars, there were trucks, street vendors' pushcarts, informal buses (see Figure 4) picking up and discharging passengers, pedicabs, and many, many, motorcycles.
- There was a parking lot with vehicles maneuvering in and out directly from the street. This included vehicles entering and exiting in the short (30m) section between the two signalized intersections.
- Formal driver's education and testing were nonexistent. One Thai told me that her driver education consisted of her entire high school class sitting on gymnasium bleachers, filling out application forms for a driver's license, while a traffic cop shouted instructions through a bullhorn. No mention was made of how to operate a vehicle. A week later, they all received lifetime driver's licenses.

¹ Annotations in blue font added by Author.

² Source: The author using a base from Google Earth Pro. The background is a collage of aerial photographs stitched together to resemble the pre-project condition, since no actual aerial photo is available from that time period.

Figure 3: Tha Phae Gate Prior to Project (JIRCAS, 1985)



View from northeast looking southwest towards the inner city. Note how the wall limits the ability of westbound and northbound drivers to see each other. The photographer had to position himself about 20m to the side in order to bring northbound vehicles into view, as they are not visible from the westbound lanes.

Poor sight distance led to many right-angle collisions when drivers failed to heed the red light, as the motorcyclist is doing in the photo (note that the light is red). The motorcyclist is on the wrong side of the road, too. He is across the center line (Thais drive on the left side of the road) and on top of the painted traffic arrow pointing in the opposite direction. Also note that the sidewalks end at the wall rather than continuing through the gate. Pedestrians passing westbound through the gate did so in the travel lanes, and again were not visible to northbound drivers.

- In the absence of formal driver education, drivers were left to decide for themselves how to act on the road. As an exasperated Japanese traffic safety team reported a few years later, “Observation of Chiang Mai motorists reveals a high tendency for unpredictable behavior by motorcyclists. Erratic steering, frequent lane changing, inattentive merging at junctions, and disobeying traffic signals cause many conflicts each day.” (Japan International Cooperation Agency, 2002)
- The city government’s attempts to impose order by instituting one-way flows were undermined by its frequent experiments at changing the directions of travel. While some amount of experimentation was probably necessary, it left drivers confused. After a while, attempts to prohibit certain movements were simply ignored.
- A significant portion of drivers were tourists from other parts of Thailand or from other countries who were unfamiliar with Chiang Mai’s confusing road system. They relied on paper maps that often did not indicate one-way roads or, if they did, may not have been up-to-date with the most recent changes³.

³ The complimentary map passed out to tourists at the Rincome Hotel in the 1970’s is an example (Rincome Hotel). Although many roads were one-way, none are indicated on the map. The numbers printed on some of the roads indicate bus routes.

Unsurprisingly, in such a chaotic situation, accidents were frequent. Unfortunately, it is not possible to determine the pre- and post-project accident rates at this site due to poor record-keeping. As the same Japanese traffic safety team reported, “The lack of a specific accident data recording unit within the Chiang Mai Traffic Police Department was a major hindrance to this effort. It was found that accident records gathered from the site vary according to the individual sent to investigate. Unfortunately, data was inconsistent and not accurate due to the lack of a standardized format adopted.” (Japan International Cooperation Agency, 2002). It should also be noted that even if an accident recording system had existed, the prevalence of violations even for the party not at fault, such as intoxication, driving without a license, not wearing a helmet, expired registration, etc., would have disincentivized people from reporting an accident.

Figure 4: Another View of the Pre-Project Condition (JIRCAS, 1985)



View looking west through the gate. Note the monk at left walking in the street and about to reach the blind corner caused by the wall. He is looking straight forward rather than to the left, the direction vehicles would come from. Note also the northbound pickup running a red light into the path of the minibus in the center of the picture.

⁴ Unfortunately, poor driver discipline remains a stubborn problem in Thailand. Thailand is in the top 10 countries in the world in terms of road fatalities per capita. Traffic accidents are the leading cause of death for people aged 10-29 (World Health Organization, Thailand, 2018). Every year before a major holiday, Chiang Mai municipality releases CCTV footage of traffic accidents in an attempt to scare people into driving more safely (Bad Driving Asia, 2018). It makes for uncomfortable viewing.

In the Tha Phae gate area, the worst accidents occurred where the west-bound traffic on Tha Phae Road crossed northbound traffic just inside the gate. Drivers in these two movements could not see each other because the brick wall, with no setback, blocked the view. The intersection was signalized, which should have resolved this conflict, but poor driver discipline and red light running led to frequent right-angle collisions (see Figure 4)⁴.

PROJECT INITIATION

Help arrived when, in 1982, Chiang Mai was selected for the World Bank's Regional Cities Development Project (RCDP). The overall goal of RCDP was to develop five cities in poor rural parts of Thailand into regional centers with enough economic, educational, and cultural opportunities to attract rural households that might otherwise have migrated to Bangkok and ended up in one of that city's fast-growing slums (World Bank, 1985). With a metro population of just over 100,000 in 1980, Chiang Mai was easily the largest city in the northern region and was the first city picked for the project.

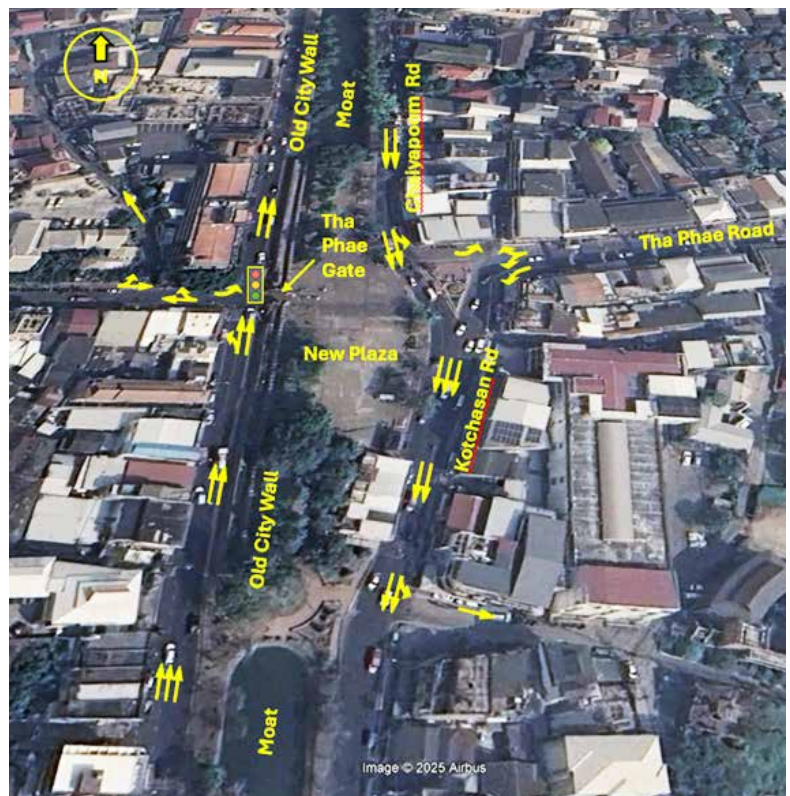
RCDP used Thai government funds for the local components, mostly land and labor, and foreign loans for imported components such as construction machinery and materials. Of the US\$12 million spent on the projects in Chiang Mai, 43% of the funding was a World Bank loan to Thailand's central government, passed on to the City as a grant, 25% was grant funding from the central government's own resources, 9% was from City's own resources, and the remaining 23% was from loans to the City⁵. In addition, the Australian government provided engineering expertise through grants. Besides the Tha Phae Gate project discussed in this paper, RCDP did other improvement projects in Chiang Mai, including a new Ping River Bridge, sanitation and water for slum areas, and a riverfront cleanup/development project. Local officials were sent on study tours abroad to see demonstration projects, in other countries.

⁵ Ibid

Through related projects the central government also upgraded the city's airport and expanded Chiang Mai University. The Tourism Authority of Thailand promoted local handicraft industries and marketed the city as a destination for foreign and domestic tourists.

Institutional arrangements for the project were complex. Besides the municipality, there were the central government Ministries of Finance and Public Works, the Fine Arts Department, the World Bank, their consultants, and the provincial government, all of whom had some claim to the project and whose agendas did not coincide. And although public engagement of the kind currently practiced in the U.S. wasn't a thing in Asia in the 1980s, the residents of Chiang Mai were and are ever-conscious of their cultural heritage and make their support or opposition to changes obvious to policy-makers. The fact that the project attracted volunteers and private donations was indicative of widespread public support.

Figure 5: Aerial View of the Completed Project⁸



Current configuration facing north, showing the reconfigured streets, new traffic island, and plaza. Conflicts have been eliminated to the point where no signalization is needed on the eastern side.

In the center of the figure you can see that the parking area has been eliminated, and the endpoint of the moat shifted southward. The intersection of Chaipoom Road and Kotchasan Road has also been shifted northward to form a three-legged intersection with Tha Phae Road, freeing up additional space for the plaza. The bulge on the eastern side of the plaza is the leftover right-of-way from the

Eventually, an arrangement was worked out whereby the foreign engineers would develop the road design themselves with input from the City's Public Works Department. The remaining groups left the roads to the engineers and focused instead on what would happen with the gate and old city wall, which to them was the more important component.

PROJECT DESIGN

The RCDP engineering team diagnosed the issues at Tha Phae Gate as follows:

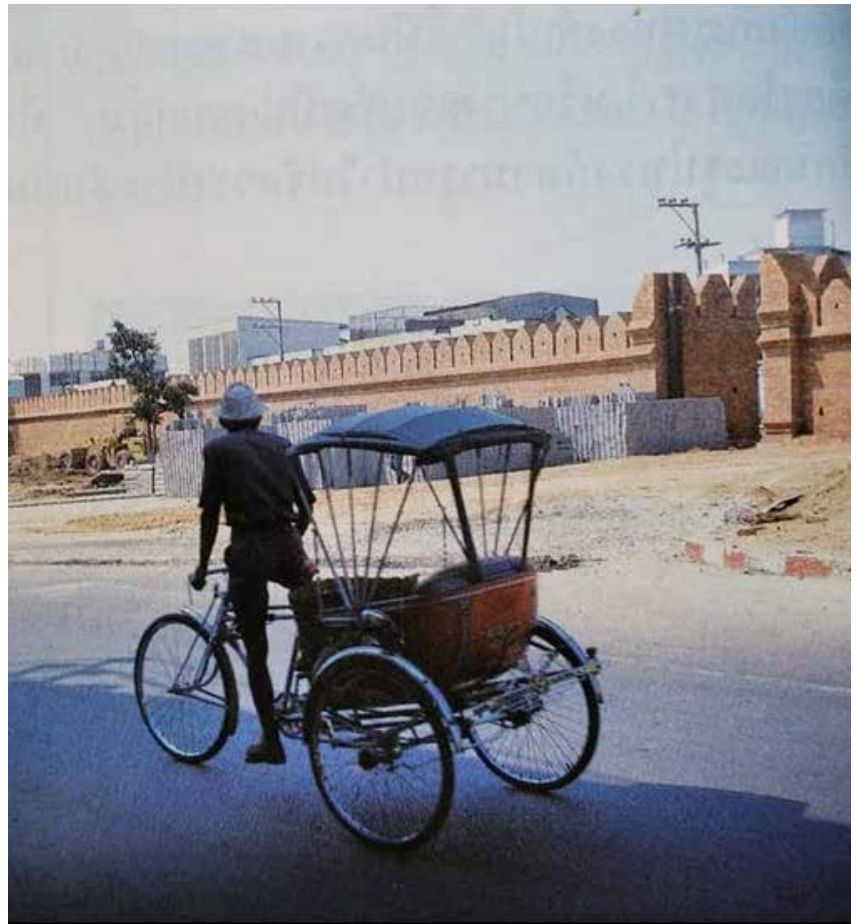
- Too much traffic was being funneled to the gate area. Traffic that did not need to be there needed to be offered other routes.
- Since signalization did not work in the local context, conflicts between traffic streams needed to be resolved through physical separation.
- There were too many intersections in a small space. Some needed to be eliminated or consolidated.
- The safety issues associated with the gate itself could not be solved without either tearing down enough of the wall to provide reasonable sight distances or eliminating the movement of traffic through the gate.

A plan was developed that involved closing the gate to motorized traffic, thus eliminating one of the poorly-functioning signalized intersections and simplifying the other (see Figure 5). Chaiyapoom Road was realigned to meet Kotchasan Road very close to Tha Phae Road, effectively forming a three-legged intersection. A sidewalk was added to the western (inner) side of the gate so that pedestrians emerging from the gate would no longer step directly into traffic.

Tha Phae Road itself was made one-way westbound, except for a short contra-flow section needed to maintain a couplet to the northeast of the gate. The next major road to the south, Loy Kroh Road, was made one-way eastbound to serve the eastbound movement that was eliminated from Tha Phae Road.

⁶ Rattanakosin Road.

Figure 6: Tha Phae Gate



An important off-site component was a new 4-lane road and Ping River bridge 1.3km north of the gate⁶ that allowed traffic to bypass the area, as well as opening up a new area for development per RCDP's overall goal of promoting the growth of the city. This RCDP-funded project redirected approximately one-third of the traffic away from the walled portion of the city.

Although the project was originally conceived as a way to improve traffic operations, the municipal and provincial governments saw its potential to be something much bigger. They worked with the *Thai Fine Arts Department*, which oversees all historical sites in the kingdom, to restore the gate and wall to something like its original condition⁷. In addition, they put pedestrian-friendly paving in the space freed up by the removal of the parking lot and the street re-configuration to provide much-needed public open space. To this, they added shade trees and historical markers. Construction began in 1985 (see Figure 5) and was completed the following year.

⁷ The pre-project gate was in the original location but was not itself original. The Lanna kingdom was fought over for centuries, and the gate destroyed and rebuilt many times. The configuration with four travel lanes that existed prior to the project dated from the early 1960s.

EFFECT OF THE PROJECT

The public quickly became accustomed to the new configuration and traffic has flowed relatively smoothly ever since. The city government followed up the construction work by actively promoting the use of the plaza for festivals, processions, and art exhibitions throughout the year (see cover photo). On Sundays, the adjacent portion of Rachadamnoen Road is closed to traffic and the gate anchors a weekend market. These days, no visit to Chiang Mai is considered complete without a social media picture at Tha Phae Gate (see Figure 7). Quite a change for a place that was once a dangerous traffic tangle people, used to warn each other about!

In retrospect, the project occurred just in time. The government's efforts to turn Chiang Mai into a magnet for rural-urban migration proved very successful. The city doubled in population in the decade following the project's completion, and doubled again in the decade after that (Macrotrends, 2025). At the same time, there was an explosive growth in vehicle ownership. Chiang Mai is now one of the most heavily motorized cities in Asia. The vehicle ownership rate is 30% higher than in Bangkok or Taipei, and more than three times the rate of Delhi, all cities famous for their congestion. A 2012 survey (Jittrapirom & Emberger, 2012) found that 97% of households own at least one motorized vehicle, compared to 88% in Los Angeles (Maciag, 2014). It is difficult to see how the old road network in the gate area could have continued to function under these conditions.

LESSONS LEARNED

The three main takeaways from this project are:

1. It is often said that traffic safety depends on the three "Es": education, enforcement, and engineering. This case shows that when the first two are absent, the third can still provide significant relief. Unfortunately, that relief does not extend beyond the limits of the project site.
2. Outside money can serve as a catalyst. If the World Bank had not gotten involved, then this project would not have happened. The proof is that in the places where they did not get involved, nothing happened. It wasn't just that they brought in money, though that helped. It was also the fact that they brought in technical expertise, such as traffic engineers, that had never before been available to Chiang Mai (City staff were unaware that that profession even existed). Moreover, their involvement elevated the project in terms of legitimacy; changes that would have been scoffed at if proposed by City staff were readily accepted by the public when proposed by outside experts. And finally, foreign involvement also brought with it attention and resources from the national government that had previously been sorely lacking.
3. The most important takeaway from this project is the potential benefit of not limiting one's ideas for solving a traffic problem to just traffic operations.

Figure 7: Tourists Taking a Selfie at the Gate⁹



If one takes a broader view, one may find that there could be co-benefits that might prove even more important in the long run. Although this project started as an effort to improve traffic safety and operations, for the local residents it was about creating a new plaza and promoting the city's heritage. They were willing to accept one-way roads and the loss of parking spaces (always a sensitive issue) because they got something they really wanted in return.

⁸ Source: The author using a base from Google Earth Pro.

⁹ Copyright of the Tourism Authority of Thailand (TAT)

The City currently has an unexpected opportunity to replicate this project, and it will be interesting to see if they do. In 2022, a 10m section of the Chang Phuak Gate, Tha Phae Gate's counterpart on the north side of the old city wall, collapsed due to heavy rains oversaturating its earthen core (The Nation, 2022). The gate has been closed to all traffic ever since, while the City and Fine Arts Department try to decide what to do. Since this was totally unexpected, no plans or funding had been prepared. One can only hope that they recognize this as a golden opportunity and use it to the city's best advantage.

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Don Hubbard, PE, AICP was a Peace Corps volunteer, embedded as an engineer in the Public Works Department of Chiang Mai Municipality in 1982-83.

He served as a liaison between the City and the World Bank in the planning stages of this and other projects. He now works as a traffic engineer and urban planner in Northern California.

CONCLUSION AND KEY TAKEAWAY

Untangling the city's biggest traffic bottleneck played an important part in keeping Chiang Mai livable during a period of rapid growth. That this was done in a way that preserved its historic character turned it into an economic asset for the city's tourism industry.

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